machine 2. This current is fed by a current converter 18. The frequency of this current is determined by the difference between the synchronous rotational speed, the rotational speed of the rotor and the pole number of the machine. A regulating machine 20 is mounted at the same common shaft 22. The regulating machine 20 is in this example a synchronous machine, where the armature winding 24 is placed in the rotor 26. The co-rotating current converter 18 may therefore transfer power between the rotor 26 of the regulating machine and the rotor 10 of the main machine. When the main machine 2 rotates with synchronous speed, all electric power in the stator is converted into mechanical power in the rotor (if losses are disregarded). No active electric power is therefore supplied to the rotor winding 16 at this occasion. When the machine 2 rotates asynchronously, a certain part of the power in the stator 12 will be transmitted transformationally from the rotor 10. This electric energy should therefore be provided to the rotor winding 16 from the current converter 18. The current converter 18 thus makes provision for the magnetizing of the main machine 2 and for supplying/receiving regulating power (active electric power) to/from the rotor winding 16 from/to the main machine 2. The task of the regulating machine 20 is to operate as a voltage source for the current converter 18 so that it can magnetize the main machine 2 and to transmit the regulation power into mechanical power on the common shaft 22 in that it alternately works as motor or generator. In a preferred embodiment, the regulating machine 20 works in operation as synchronous machine. The regulating machine 20 can have another pole number than the main machine 2 so that the frequency in this can be increased. The regulating machine 20 presents direct current fed field windings 34 in the stator 28. These are supplied in normal operation via an alternating - direct current converter 42 connected to the same three-phase lines as the stator windings 14 of the main machine, via a transformer 44. At drop-out of the connected power network or other types of

operation disturbances, the field winding of the regulating machine can be supplied from a battery back-up 65 or by providing the regulating machine with permanent magnets. In the first case, the converter will be an UPS (Uninterruptable Power Supply).

IN THE CLAIMS:

1. (Amended) Power system stabilizer comprising a rotating electrical main machine with power line terminals, a current converter and a voltage source, comprising

windings in a stator in the electrical main machine connected to the electric power network terminals;

a rotor in the electrical main machine comprises alternating current windings;

one of the terminals of the current converter is connected to the alternating current windings of the rotor;

the other terminal of the current converter is connected to the voltage source;

whereby electric power is exchanged via the power line terminals by changing the rotational speed of the rotor.

2. (Amended) Power system stabilizer according to claim 1, wherein the voltage source is a voltage source, which is independent of the power lines.

3. (Amended) Power system stabilizer according to claim 1, wherein the voltage source is a regulating machine.

4. (Amended) Power system stabilizer according to claim 1, wherein the regulating machine and the main machine has a common shaft.